

## ABSTRACT

An electrochemical cell is provided, including an anode, a cathode, and an electrolyte therebetween. The anode contains magnesium in a reduced state, and the cathode includes a rutile structure. The rutile structure is capable of intercalating magnesium ions received from the anode to produce a low voltage. The electrochemical cell is rechargeable. Additionally, the electrochemical cell is cheaper, more environmentally friendly and has a higher volume density than related art electrochemical cells. A method of manufacture is also provided.